only seconds but recur with a variable frequency, usually in clusters and lasting from days to months. There are often spontaneous remissions for weeks, months or years between flurries of attacks.

About 70% of patients will obtain relief with the use of either carbamazepine or phenytoin. Thus, in about 30% of patients, medication is either ineffective or produces serious side effects necessitating discontinuance. These patients, therefore, may be candidates for the various surgical procedures that have been designed to treat tic douloureux. The mainstays of surgical therapy for this disorder are microvascular decompression of the trigeminal nerve via posterior fossa craniectomy, or percutaneous radiofrequency trigeminal gangliolysis. The former procedure has the potential of producing long-lasting pain relief without facial sensory loss, while the latter procedure avoids the risks of craniectomy and can be repeated easily if tic pain recurs.

Recently, retrogasserian injection of glycerol through a spinal needle inserted percutaneously into the trigeminal cistern has been shown to be an additional effective method of treating tic douloureux. The procedure is done with the patient awake under local anesthesia, and it is generally well tolerated. Pain relief from this procedure does not depend on producing sensory loss and there seems to be less likelihood of troublesome facial dysesthesias. Rare complications include corneal anesthesia and keratitis. More than two thirds of patients can expect pain relief for six years or longer and the procedure can be easily repeated in the event of pain recurrence. Experimental studies seem to indicate that the therapeutic effectiveness of glycerol in the treatment of tic douloureux is based on its nonspecific neurolytic effect, which may interfere with abnormal impulse generation within the nerve. Glycerol gangliolysis may represent a major advance in the treatment of tic douloureux because it is easily done, well tolerated by patients and produces much less facial numbness than other available neurodestructive procedures.

KIM J. BURCHIEL, MD
Seattle

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Migrainous Stroke—New Therapeutic Considerations

MIGRAINE IS A common disorder, present in about 5% to 10% of the general population. The clinical spectrum of migraine varies widely, from patients with infrequent mild head pains to the unfortunate group with incapacitating pain. When the neurologic features of a migrainous episode, classically thought to result from vasospasm, dominate the clinical presentation, the term "complicated migraine" is used. In some patients with complicated migraine, the vasospasm is apparently so severe or prolonged, or both, that brain tissue in the distribution of the involved vessel suffers irreversible ischemic damage, evident clinically as stroke. Aggressive migraine prophylaxis is obviously indicated in this relatively small population of patients.

Several recent clinical studies have indicated that treatment with a calcium channel blocker (specifically, verapamil) may be useful in migraine prophylaxis for patients in whom more conventional agents fail. This class of agents may prevent migraine and, in particular, its vasospastic complications, both by inhibiting vascular smooth muscle contraction and by direct antiplatelet effects. Such actions would be especially desirable for patients at risk for migrainous stroke. Propranolol hydrocholoride, however, a drug widely used for migraine prophylaxis, may actually precipitate or prolong vasospasm through potentiation of α-adrenergic agonist vasoconstriction.

In patients considered at risk for migrainous stroke—specifically, those in whom the neurologic accompaniment is pronounced or persistent—ergot therapy is to be avoided. Propranolol may also prove unsuitable. Verapamil, in a dose of 80 mg three or four times a day, should be strongly considered for these patients. Other calcium channel blockers such as nifedipine may possibly be more effective, but verification is lacking at this time.

JOHN F. ROTHROCK, MD
San Diego

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When to Stop Anticonvulsant Therapy

BECAUSE OF potential side effects from long-term therapy, anticonvulsant therapy should be discontinued in patients with epilepsy as soon as there is a reasonable certainty that seizures will not recur. In practice, defining the point at which this reasonable certainty exists is a difficult question. More information is available for children than for adults. Studies of large numbers of children, with long follow-up, consistently show that about a quarter of patients who are seizure-free for four years while receiving anticonvulsant medication will relapse when the medication is withdrawn. Adults probably have a greater chance of relapse, though the precise relapse rate is not known.

There are clinical and electroencephalographic features that can identify patients who have a greater than average probability of relapse. Patients whose epilepsy took more than five years to control and those with intellectual impairment or other static neurologic abnormalities have relapses more than half the time. The presence of focal or mixed seizure disorders or the occurrence of unequivocally epileptiform abnormalities on an electroencephalogram predict a high relapse rate.

Certain forms of epilepsy have consistent clinical and electrographic features that serve to characterize them as benign epileptic "syndromes," including typical absence seizures with 3 cps spike-and-wave complexes that occur in children of normal intelligence. Similarly, children with focal motor epilepsy who have midtemporal and central spikes (the so-called benign focal epilepsy of childhood or Rolandic epi-